

Applicant that the date of any re-submission of any item of information contained in the information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). (citing MPEP § 609(C)(1)).

After reviewing the information disclosure statements filed on 5/25/01, it appears that some of the references are missing a month designation. Note, however, for some references, such as reference CU, a month designation is not required because the year of publication is sufficiently earlier than the effective filing date so that the particular month of publication is not an issue. (see, MPEP § 609). Applicants have identified three references, namely references CN, CO and CP, that do not have a month designation that may be of significance. Applicants note, however, that the month and year for each of the references CN, CO and CP are clearly evident from the front page of the reference, and therefore, the Examiner could easily determine the missing month designation when reviewing the submitted references. In any event, Applicants are providing herewith an updated Form 1449, which is identical to the Form 1449 filed on May 25, 2001, except that the month designations have been included for references CN, CO and CP.

With respect to the supplemental information disclosure statements filed on 6/12/01, it appears that references BA and BB do not have a month designation on the Form 1449 that may be of significance. Again, the month and year for each of the references BA and BB are clearly evident from the front page of the reference, and therefore, the Examiner could easily determine the missing month designation when reviewing the submitted references. In any event, Applicants are providing herewith an

updated 1449, which is identical to the 1449 filed on June 12, 2001, except that the month designations have been included for references BA and BB. Applicants respectfully request that the Examiner now fully consider all references.

It is unclear from the Examiner's comments if all of the references cited in the information disclosure statements filed on 5/25/01 and 6/12/01 have been placed in the application file and not considered as to the merits. If that is the case, Applicants believe this to be an error. MPEP § 609 states:

If an item of information in an IDS fails to comply with all the requirements of 37 CFR 1.97 and 37 CFR 1.98, that item of information in the IDS will not be considered and a line should be drawn through the citation to show that it has not been considered. However, other items of information that do comply with all the requirements of 37 CFR 1.97 and 37 CFR 1.98 will be considered by the Examiner.

As such, Applicants believe that most of the references should already have been considered by the Examiner. Applicants respectfully request that the Examiner clarify which references were not considered as to the merits.

Finally, Applicants believe that the Examiner should have given Applicants notice of the omitted month designations, and given Applicants one month to correct any deficiencies. Form paragraph 6.51 in MPEP § 609 states:

The information disclosure statement filed on [1] does not fully comply with the requirements of 37 CFR 1.98 because: [2]. Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the above-mentioned omissions or corrections in the information disclosure statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above-mentioned information disclosure statement being placed in the application file with the non-complying information **not** being considered. See 37 CFR 1.97(i).

As indicated under the Examiner Note heading, this form paragraph should be used if “an IDS complies with the timing requirements of 37 CFR 1.97 but part of the content requirements of 37 CFR 1.98 has been inadvertently omitted.”

Even though Applicants do not believe that a fee should be required for the submittal of the enclosed corrected Form 1449’s after a first office action, an authorization to charge a deposit account is enclosed.

Finally, Applicants respectfully request that the Examiner provide initialed copies of the Form 1449’s filed on 5/25/01 and on 6/12/01 for Applicant’s files.

In paragraph 5 of the Office Action, the Examiner rejected claims 1-31 under 35 U.S.C. 102(b) as being anticipated by Cox et al. (WO 98-57402). Applicants note that the entire explanation of the rejection is as follows: “Cox et al. clearly discloses the claimed invention”. Applicants believe that the Examiner’s rejection of claims 1-31 does not clearly articulate how Cox et al. anticipates the pending claims. There is no explanation whatsoever of where each and every element of the pending claims is found in Cox et al. As noted in MPEP § 706, “[t]he goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity.” As such, if the Examiner elects to maintain this rejection, Applicants respectfully request that the Examiner specifically point out where in Cox et al. each and every limitation of claims 1-31 is disclosed.

In any event, and after careful review, Applicants believe that claims 1-31 are clearly patentable over Cox et al. (WO 98-57402). Independent claim 1 recites:

1. An optoelectronic device having a top mirror and a bottom mirror, the top mirror and bottom mirror being at least partially conductive, the improvement comprising:

a resonant reflector positioned adjacent a selected one of the top or bottom mirrors, the resonant reflector having a waveguide and a grating configured such that a first-diffraction order wave vector of the grating substantially matches a propagating mode of the waveguide; and

a cladding or buffer layer positioned between the resonant reflector and the selected top or bottom mirror, the cladding or buffer layer being sufficiently thick, or having a sufficiently low refractive index relative to the refractive index of the waveguide, to substantially prevent energy in the evanescent tail of the guided mode in the waveguide from entering the selected top or bottom mirror.

Cox et al. does not appear to disclose or suggest, for example, a cladding or buffer layer positioned between the resonant reflector and the selected top or bottom mirror, wherein the cladding or buffer layer is sufficiently thick, or has a sufficiently low refractive index relative to the refractive index of the waveguide, to substantially prevent energy in the evanescent tail of the guided mode in the waveguide from entering the selected top or bottom mirror. As such, claim 1 is believed to be clearly patentable over Cox et al. For these and other reasons, dependent claims 2-13 are also believed to be clearly patentable over Cox et al.

Independent claim 14 recites:

14. A resonant reflector for an optoelectronic device comprising:

a waveguide; and

a grating film having two or more spaced grating regions separated by one or more spaced regions, the spaced regions of the grating film having a grating film thickness that is less than the grating film thickness of the grating regions, but greater than the zero.

Cox et al. does not appear to disclose or suggest, for example, a grating film having two or more spaced grating regions separated by one or more spaced regions, the spaced regions of the grating film having a grating film thickness that is less than the grating film

thickness of the grating regions, but greater than the zero. As such, claim 14 is believed to be clearly patentable over Cox et al. For these and other reasons, dependent claims 15-17 are also believed to be clearly patentable over Cox et al.

Independent claim 18 recites:

18. A monolithic transceiver having a light emitting device and a light receiving device, comprising:
 - providing a bottom mirror on a substrate, the bottom mirror being at least partially conductive;
 - providing an active region on the bottom mirror;
 - providing a top mirror on the active region, the top mirror being at least partially conductive;
 - providing a cladding or buffer layer on the top mirror, the cladding or buffer layer being non-conductive;
 - providing a waveguide on the cladding or buffer layer;
 - providing a grating layer above the waveguide, the waveguide and grating being configured such that a first-diffraction order wave vector of the grating substantially matches a propagating mode of the waveguide;
 - the cladding or buffer layer being sufficiently thick, or having a sufficiently low refractive index relative to the refractive index of the waveguide, such that energy in the evanescent tail of the guided mode in the waveguide is substantially prevented from entering the top mirror; and
 - the grating layer having a first etched grating structure above the light emitting device.

Cox et al. does not appear to disclose or suggest, for example, a cladding or buffer layer that is sufficiently thick, or has a sufficiently low refractive index relative to the refractive index of the waveguide, such that energy in the evanescent tail of the guided mode in the waveguide is substantially prevented from entering the top mirror. As such, claim 18 is believed to be clearly patentable over Cox et al. For these and other reasons, dependent claims 19-21 are also believed to be clearly patentable over Cox et al.

Independent claim 22 recites:

22. A device comprising:
 - a first substrate having a front side and a back side with at least part of an optoelectronic device formed on the front side;

a second substrate having a front side and a back side with a resonant reflector formed on the front side; and

the front side of the first substrate bonded to the front side of the second substrate.

Cox et al. does not appear to disclose or suggest, for example, a device that includes: a first substrate having a front side and a back side with at least part of an optoelectronic device formed on the front side; a second substrate having a front side and a back side with a resonant reflector formed on the front side; and wherein the front side of the first substrate bonded to the front side of the second substrate. As such, claim 22 is believed to be clearly patentable over Cox et al. For these and other reasons, dependent claims 23-31 are also believed to be clearly patentable over Cox et al.

In view of the foregoing, all pending claims 1-31 are believed to be in condition for allowance. Reexamination and reconsideration are respectfully requested. If the Examiner would like to discuss the application or its examination in any way, please call the undersigned attorney at (612) 677-9050.

Respectfully submitted,

James Allen Cox et al.

By their attorney,

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Version With Markings To Show Changes Made

The paragraph beginning at page 3, line 3 has been amended as follows:

For many optoelectronic devices that have a resonant cavity, the top and/or bottom mirror stacks are Distributed Bragg Reflector (DBR) mirrors. DBR mirrors typically include a number of alternating layers of semiconductor material such as AlGaAs and AlAs. Often, both the top and bottom mirror stacks include a significant number of DBR mirror periods to achieve the desired reflectance. One way to reduce the number of DBR mirror periods that are required is to replace some of the DBR mirror periods with a resonant reflector. Such a configuration is disclosed in U.S. Patent Application Serial No. [] 08/872,534, entitled "Resonant Reflector For Improved Optoelectronic Device Performance And Enhanced Applicability", which is incorporated herein by reference. A typical resonant reflector may include, among other things, a waveguide and a grating.